A United Front: Coach and Teammate Motivational Climate and Team Cohesion among Adolescent Female Athletes

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ABSTRACT

This study examined the association of coach and peer motivational climates with team cohesion among female, adolescent volleyball players. Participants (N = 235) included 14- to 18-year-old players (M = 16.3 yrs., SD = .97) from Junior Olympic club teams in the midwestern U.S. Athletes completed self-report measures in the middle of the season: *Perceived Motivational Climate in Sport Questionnaire-2* (Newton, Duda, & Yin, 2000), the *Peer Motivational Climate in Youth Sport Scale* (Ntoumanis & Vazou, 2005), and the *Youth Sport Environment Questionnaire* (Eys, Loughead, Bray, & Carron, 2009). Canonical correlation analysis revealed all coach and peer task-involving climate subscales were positively related to task and social cohesion. Coach punishment for mistakes and peer intra-team conflict (ego-involving subscales) were negatively related to task and social cohesion. These findings provide support for theories of motivation and suggest practical implications for how coaches can maximize team cohesion through shaping the motivational climate.

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CHAPTER 1

INTRODUCTION

Sport is an important and influential factor in the United States. The National Federation of State High School Associations (2017) estimated that over 7 million adolescent athletes participated in at least one organized high school sport during the 2016-2017 school year, indicating the widespread integration of sport into society. Sport offers a unique context to study youth experiences on a public stage, as athletes interact with many people including coaches, teammates, spectators, parents, and referees. These connections impact emotional, physical, and social development and can influence psychological well-being, such as self-esteem and perceived competence (Horn, 2004, 2008; Weiss & Stuntz, 2004). Young athletes rely heavily on coaches and teammates as sources of perceived competence and physical skill information (Horn, 2004, 2008). Thus, it is necessary to examine these social relationships to fully understand athletes' psychosocial and behavioral outcomes of sport experiences.

Research in sport and exercise psychology has extensively examined the roles of coaches and teammates—leadership style, feedback, group acceptance, friendship, and motivational climate—in promoting athletes' positive behaviors, self-perceptions, and motivational orientations (e.g., Amorose, 2007; A. L. Smith, 2007; M. R. Weiss, Amorose, & Kipp, 2012). However, several gaps remain. First, most studies utilize only one guiding theory (e.g., Allen & Howe, 1998; Black & Weiss, 1992). Integrating multiple theories may allow researchers to identify several potentially influential

variables within the same setting. Second, few studies have directly compared multiple social sources (e.g., coaches and peers; parents and peers) on youth athletes' experiences (e.g., Keegan, Harwood, Spray, & Lavallee, 2009, Kipp & Weiss, 2013, 2015). Simultaneously incorporating coaches and peers allows researchers to identify the relative strength of associations between sources of social influence and motivational outcomes. Third, while several studies have explored the relationship of coach motivational climate and individual outcomes (e.g., self-perceptions), few have investigated group motivation outcomes like team cohesion (e.g., Garcia-Calvo et al., 2014; Horn, Byrd, Martin, & Young, 2012; McLaren, Newland, Eys, & Newton, 2017). Perceptions of group cohesion have been associated with athletes' positive outcomes such as social skills, expectancies for success, and beliefs about ability (e.g., Bruner, Eys, Wilson, & Coté, 2014; Evans & Dion, 2012), so it is worthwhile to consider the relationship of coach and peer climate with cohesion. This study aimed to extend existing research by integrating multiple theories of motivation and examining the simultaneous association of coach and peer motivational climates with team cohesion among female adolescent athletes.

Several social-cognitive theories guide research on motivation in youth sport. Self-determination theory (Deci & Ryan, 1985), competence motivation theory (Harter, 1978), and achievement goal theory (Nicholls, 1989) are prominent in studies of adolescent athletes' psychosocial outcomes and motivational behaviors (e.g., Amorose & Anderson-Butcher, 2007; A. L. Smith, 1999; R. E. Smith, Smoll, & Cumming, 2007, 2009). Self-determination theory states an individual's three psychological needs

(autonomy, relatedness, and competence) can be fulfilled through the behaviors of significant others, such as coaches' and teammates' evaluative feedback and interpersonal style (Deci & Ryan, 1985; Weiss et al., 2012). Competence motivation theory posits that an individual participates in an activity to develop or demonstrate competence; significant others, such as coaches and teammates, provide competence information through modeling, feedback, and reinforcement (Harter, 1978; Weiss et al., 2012). Achievement goal theory highlights that significant others, such as coaches and teammates, can influence athletes' self-perceptions and motivational behaviors through leadership style and motivational climate (Harwood, Spray, & Keegan, 2008; Nicholls, 1989).

Motivational climate is a social-environmental construct common among all three motivational theories and has been studied extensively relative to coach influence (e.g., Kipp & Amorose, 2008; Kipp & Weiss, 2013, 2015; M. R. Weiss, Amorose, & Wilko, 2009). Motivational climate refers to athletes' perceptions of how their coaches shape practices and competitions relative to defining success (Ames, 1992; Harwood et al., 2008). Typically, motivational climates have been defined as varying in task-involving and ego-involving components. Higher task-involving climates—also known as mastery climates—emphasize effort, improvement, and learning (i.e., self-referencing criteria), while higher ego-involving climates—also known as performance climates—emphasize social comparison and winning (i.e., norm-referencing criteria) as reflections of successful performance.

Coaches create the motivational climate through their leadership style and feedback patterns. Coaches who utilize autonomy-supportive leadership behaviors, provide contingent and informational feedback, and promote skill mastery over favorable comparison to teammates create task-involving climates (Barnett, Smoll, & Smith, 1992; Kipp & Amorose, 2008). Coaches who invoke controlling leadership behaviors and promote normative evaluation over effort and improvement create ego-involving climates. Athletes' perceptions of higher task-involving climates are associated with higher perceived competence, self-worth, enjoyment, and intrinsic motivation, whereas perceptions of higher ego-involving climates are associated with higher anxiety and lower intrinsic motivation (e.g., Keegan et al., 2009; Kipp & Amorose, 2008; McLaren et al., 2017).

Research has expanded beyond the effects of coach-created motivational climate to include how teammates influence climate perceptions (e.g., Keegan et al., 2009; Vazou, 2010; Vazou, Ntoumanis, & Duda, 2005, 2006). Similar to the coach-created climate, perceptions of the peer motivational climate can be higher or lower in task- and ego-involving factors. Athletes who perceive that teammates encourage improvement, skill mastery, and cooperation (higher task-involving) report higher enjoyment, self-worth, and intrinsic motivation (Vazou et al., 2005, 2006**)**. Athletes who report that teammates emphasize normative comparison and intra-team rivalry (higher ego-involving) report higher anxiety and lower enjoyment and intrinsic motivation (e.g., Ingrell, Johnson, & Ivarsson, 2016; Vazou et al., 2006).

Studies of the joint association of coach- and peer-created motivational climates have revealed similar and unique relationships with athlete psychosocial and motivational outcomes (e.g., d'Arripe-Longueville, Pantaléon, & Smith, 2006; Vazou et al., 2005, 2006). Ntoumanis, Taylor, and Thogersøn-Ntoumani (2012) surveyed adolescent male athletes across multiple time points and found that perceptions of a higher task-involving peer climate were associated with lower burnout, while a higher ego-involving coach climate was related with higher burnout. Additionally, a higher task-involving coach climate was linked with greater intention to return the following season, while neither a task- nor ego-involving peer climate was predictive of intention to return. These studies support the associations posited by social-cognitive theories of motivation described earlier.

In addition to individual athlete motivation, research has examined social determinants of group cohesion. Carron and colleagues' model of sport cohesion is comprised of task and social components (Carron, 1982; Carron, Brawley, & Widmeyer, 2002; Carron, Widmeyer, & Brawley, 1985). Task cohesion refers to similarity of group members' goals and the ability of group members to work together; social cohesion refers to perceptions of close interpersonal relationships within a group. Carron and colleagues identified environmental (e.g., organizational goals), personal (e.g., individual skill level), leadership (e.g., leadership style), and group factors (e.g., desire for success) as correlates of team cohesion. Similar to motivational climate, an athlete perceives their team's cohesiveness through their surrounding social environment and interactions with significant others.

Multiple studies show that perceptions of coaches' social support and instruction and peer prosocial behaviors are related to higher team cohesion (e.g., Gardner, Shields, Bredemeier, & Bostrom, 1996; Westre & Weiss, 1991). Particular to the present study, perceptions of a task-involving motivational climate are related to higher task and social cohesion among teams (e.g., Eys et al., 2013; McLaren, Eys, & Murray, 2015). Only one study was found that simultaneously compared coach and peer climates with team cohesion (Garcia-Calvo et al., 2014). Semi-professional adult males who reported higher coach- and peer- task-involving climates also reported higher task and social cohesion. Perceptions of higher coach- and peer- ego-involving climates were associated with lower task and social cohesion. Overall, perception of a higher coach-created task-involving climate was the strongest predictor of task and social cohesion. However, questions remain about the relationship between perceived coach- and peer-created climates with cohesion in youth sport.

Therefore, based on multiple motivation theories, the sport cohesion model, and research on motivational climate, the purpose of the present study was to examine the concurrent association of coach and peer motivational climate with team cohesion among female, adolescent volleyball players. This study extends past research by comparing the relationships of coach and peer climates with task and social cohesion among adolescent athletes. Sport psychology literature alludes to the importance of coaches and teammates banding together to create a "united front"—a joint and equal effort towards promoting positive athlete development. This study aims to add to knowledge about this relationship**.** In the following sections, I further discuss theories of motivation and

empirical research on coach influence, peer influence, combined coach and peer influence, and team cohesion, which will culminate in the study purpose and hypotheses.

Theories of Motivation

Research in sport and exercise psychology has utilized several social-cognitive theories to understand participants' sport experiences. These theories, among others, include self-determination theory (Deci & Ryan, 1985), competence motivation theory (Harter, 1978), and achievement goal theory (Nicholls, 1989). They highlight a multitude of social factors (including familial, peer, and other sources) that influence motivational orientations and behaviors. In addition, these theories highlight cognitive, affective, and environmental variables that explain differences in psychosocial and motivational outcomes.

Self-Determination Theory

Deci and Ryan (1985) originally conceptualized self-determination theory, which states an individual's motivational orientation is based on satisfying three psychological needs: autonomy (perception of choice regarding personal behaviors), competence (perception of ability in a task or domain), and relatedness (perception of social connectedness to important others). According to this theory, motivational orientations range along a continuum from controlling to self-determined forms (Deci & Ryan, 1985; M. R. Weiss et al., 2012). Controlling forms of motivation include external regulation, such as pressure by or obligation to significant others (or to oneself) to participate in an activity, while self-determined forms include internal regulation, such as doing an activity to confirm one's identity or for pure enjoyment.

Fulfillment of the three psychological needs is acquired through characteristics of the social environment (Deci & Ryan, 1985). Significant others such as coaches, teachers, parents, and peers can affect an individual's needs satisfaction through processes such as providing choice, feedback, and mastery opportunities (Ryan & Deci, 2000). In sport, significant adults (e.g., coaches) and peers (e.g., teammates) are particularly salient sources of information by which adolescents judge their competency (M. R. Weiss et al., 2012). Positive and supportive coach and teammate relationships can fulfill an athlete's need for relatedness; informational and positive evaluative feedback can satisfy an athlete's need for competence; and, the nature of the practice structure can gratify an athlete's need for autonomy. In turn, psychological need satisfaction influences self-determined motivation and participation behaviors. Self-determination theory has been well supported in studies conducted in sport and physical activity (e.g., Kipp & Amorose, 2008; Kipp & Weiss, 2013; see M. R. Weiss et al., 2012, for an extensive review).

Competence Motivation Theory

Harter's (1978) competence motivation theory contends that humans participate in activities to fulfill an innate desire to develop or demonstrate competence. As cognitive, affective, and behavioral components influence motivation, competence motivation theory integrates an individual's desire to be effective in their environment, affective responses, and mastery attempts to explain potential underlying mechanisms of motivation. Perceived competence in and enjoyment of doing an activity increases when mastery of activities is attained, especially for optimally challenging tasks—leading to continued motivation to pursue competence opportunities.

Social sources like coaches, parents, and peers can influence individuals' perceived competence, enjoyment, and motivational orientations and behaviors through mechanisms such as feedback, reinforcement, and modeling (Harter, 1978; M. R. Weiss et al., 2012). If significant others provide contingent, positive reinforcement for mastery attempts and future-oriented informational feedback, perceived competence, positive affect, and motivational orientations should increase. Competence motivation theory has been a productive framework for examining relationships between significant others (coaches, parents, peers) and athletes' psychosocial and behavioral outcomes in the sport domain (e.g., Black & Weiss, 1992; A. L. Smith, 1999; Ullrich-French & Smith, 2006, see M. R. Weiss et al., 2012, for an extensive review).

Achievement Goal Theory

Nicholls's (1989) achievement goal theory posits that individuals participate in an activity to demonstrate competence (similar to competence motivation theory), but also postulates competence can be subjectively interpreted through self- or norm-referenced ways. Individuals are primarily task-oriented when they define success in terms of improvement, effort, and task mastery, while individuals are deemed ego-oriented when success is primarily defined through social comparison and superior performance outcomes. Individuals can vary in level of both task- and ego-orientation (e.g., high-low, low-high, high-high), which, when coupled with perceived competence, influences affective responses and motivational outcomes (Harwood et al., 2008; M. R. Weiss et al., 2012). Similar to self-determination and competence motivation theories, social-environmental and situational factors are important sources of shaping individuals'

psychosocial (e.g., perceived competence, enjoyment) and behavioral outcomes (e.g., effort, participation) in specific achievement domains (Harwood et al., 2008; M. R. Weiss et al., 2012).

Significant others in sport (e.g., coaches, parents, teammates) can affect an individual's goal orientation through a variety of ways, like feedback, reinforcement, modeling, and motivational climate (Ames, 1992; Harwood et al., 2008; M. R. Weiss et al., 2012). Parallel to goal orientations, motivational climates can be described as task- (mastery) and ego- (performance) involving. A mastery (or task-involving) climate is created when others focus on self-referenced achievement (learning, improvement, effort); a performance (or ego-involving) climate is created when the focus is on norm-referenced achievement (favorable peer comparison, competitive outcomes, winning). Mastery climate and performance climate will be utilized in the remainder of this study, unless cited researchers used different terms. Like goal orientations, climates can be higher and lower in both task- and ego-involving components. Research in sport and physical activity has consistently shown that perceptions of a higher mastery motivational climate are related to higher levels of enjoyment and intrinsic motivation, while perceptions of a higher performance motivational climate are related to higher levels of fear of failure and anxiety (e.g., Kipp & Amorose, 2008; Seifriz, Duda, & Chi, 1992; R. E. Smith et al., 2007; see Harwood et al., 2008, for an extensive review).

Summary

Self-determination theory, competence motivation theory, and achievement goal theory represent practical motivational theories pertinent to the physical domain

(Harwood et al., 2008; M. R. Weiss et al., 2012). All consider relationships among social-environmental factors (e.g., significant others, motivational climate), perceived competence, affective responses, motivational orientations, and participation behavior. In youth sport, coaches and teammates are major informational sources for athletes' competence perceptions and motivational processes. Coaches influence athletes' motivational outcomes through feedback patterns, leadership style, and motivational climate. Teammates influence athletes' motivational outcomes through group acceptance, friendship, leadership, and climate. In the following section, research findings regarding coaches' impact on youth motivational outcomes will be further examined.

Research on Coach Influence and Youth Motivation in Sport

In sport, coaches decide team placements, practice plans, and playing time, and shape team culture through their actions. Coaches are a salient source of athletes' competence information and influence their physical skills and psychosocial development. Coach feedback, leadership style, and motivational climate indicate ways in which coaches can impact youth athletes' psychosocial development and physical progress during sport participation.

Coach Feedback

Coaches often use informational feedback, such as instruction on how to improve skills, and evaluative feedback, such as reinforcement and criticism in response to athlete actions, which influence athletes' confidence, motivation, and performance. Coach feedback has been studied in association with athletes' perceived competence, autonomy,

relatedness, enjoyment, and intrinsic motivation (e.g., Amorose & Anderson-Butcher, 2007, 2015; M. R. Weiss et al., 2009).

Through a line of coaching effectiveness research spanning fifty years, R. E. Smith, Smoll, and colleagues examined the multi-faceted relationship between coach feedback and athlete psychosocial outcomes (e.g., Barnett et al., 1992; R. E. Smith et al., 2007, 2009; R. E. Smith & Smoll, 1990; R. E. Smith, Smoll, & Barnett, 1995; R.E. Smith, Smoll, & Hunt, 1977; Smoll, Smith, Barnett, & Everett, 1993; Smoll, Smith, Curtis, & Hunt, 1978). Across studies, they found that more frequent positive reinforcement for desirable behaviors, mistake-contingent encouragement, and corrective and technical instruction were associated with higher sport enjoyment, perceived competence, and self-esteem, and lower performance anxiety.

Furthermore, studies have specifically examined coach feedback as a source of physical competence information among children and adolescents (e.g., Amorose & Smith, 2003; M. R. Weiss & Amorose, 2005; M. R. Weiss, Ebbeck, & Horn, 1997). For example, Amorose and Weiss (1998) presented 6-8 and 12-14 year-old study participants with videos of successful or unsuccessful performance attempts accompanied by coach feedback. Coaching feedback was a significant influence for both age groups on perceived ability, effort, and future success. After successful performances, praise was associated with higher perceived ability, effort, and future success, while informational feedback was associated with lower perceived ability; following unsuccessful performances, informational feedback was associated with higher ability, effort, and

future success. These findings highlight coach feedback as a meaningful source of competence information.

Several studies have examined the relationship between coach feedback and psychosocial outcomes (e.g., perceived competence) using different ages, genders, sport types, ability levels, and moderating variables (e.g., Allen & Howe, 1998; Black & Weiss, 1992). Black and Weiss (1992) found that adolescent female swimmers who rated their coaches as giving higher praise and informational feedback following success and encouragement plus information following mistakes reported higher perceived competence, success, effort, enjoyment, and preference for challenges. Male swimmers who rated coaches as giving more frequent information, praise, and encouragement plus information reported higher perceived success, competence, and preference for challenges. Overall, studies support that athletes who receive contingent praise after desirable behavior and encouragement plus informational feedback following errors experience greater positive psychosocial outcomes.

Studies have continued to examine coach feedback in relation to psychosocial outcomes—like perceived competence—and motivational orientations and behaviors—like intrinsic motivation (e.g., Horn, 1984, 1985; M. R. Weiss et al., 2009). Horn (1985) extended studies by Smith and Smoll by using Harter's (1978) competence motivation theory to examine the relationship between coach feedback and perceived competence with adolescent female athletes. Contrary to theoretical predictions, Horn (1985) found that players who received more frequent praise following success reported lower perceptions of competence, whereas players who reported more frequent criticism

following mistakes reported higher perceptions. However, she attributed this theoretical discrepancy to coaches' misuse of appropriate and contingent feedback. Coaches praised mastery of easy rather than challenging skills, which may have been interpreted by athletes as coaches' lower expectations. Criticism may have been interpreted as the coaches' expectations of ability to perform at a higher level, which could increase perceptions of competence.

Several studies have also observed coach feedback patterns in relation to expectation effects (e.g., Horn, 1984; Solomon, 2008; Wilson & Stephens, 2007). Coaches with inflexible notions of player ability who differentially provide feedback and reinforcement to high- and low-expectancy athletes can create a self-fulfilling prophecy (Horn, 2008; Horn, Lox, & Labrador, 2010). Such differential coach behaviors can affect athletes' perceived competence, enjoyment, and intrinsic motivation (Horn et al., 2010).

In summary, coach feedback is strongly linked to athletes' psychosocial and skill development across ages, genders, sport types, and experience levels (e.g., Horn, 1984, 1985; M. R. Weiss & Amorose, 2005). Evaluative and informational feedback and mistake-contingent encouragement are closely related to athletes' perceived competence, affective responses, and motivation. How coaches relay information about skill, strategy, and ability is associated with psychological and behavioral outcomes.

Coach Leadership Style

Coaches can shape players' social, psychological, and behavioral outcomes through their leadership style. Among motivational theories, coach leadership behaviors can be classified as autonomy-supportive or controlling (e.g., Amorose, 2007; LaVoi,

2007). Autonomy-supportive coaching behaviors involve acknowledging players' thoughts and feelings, encouraging and allowing athletes to make choices, and minimizing pressure to conform to coach expectations. These behaviors satisfy an athlete's psychological need for perceived autonomy by encouraging behavioral control and self-regulation. Conversely, controlling behaviors involve pressuring athletes to think, feel, or engage in behaviors that match a coach's desires; these behaviors thwart fulfillment of perceived autonomy.

Autonomy-supportive behaviors are associated with psychosocial outcomes such as higher self-esteem, positive affect, well-being, and perceived competence, autonomy, and relatedness (e.g., Adie, Duda, & Ntoumanis, 2011; Amorose & Anderson-Butcher, 2007). Through surveys of adolescent female gymnasts, Kipp and Weiss (2013) found that perceived coach autonomy-support (coupled with a mastery climate) was related to positive affect (an index of well-being) through perceived autonomy and coach relatedness. Adie et al. (2011) performed a 2-year longitudinal analysis of the association between autonomy-supportive coach behaviors and indices of well-being with elite youth soccer players. They found that perceived autonomy-supportive behaviors were related to lower burnout and higher satisfaction of autonomy, relatedness, and competence needs.

Additionally, studies have supported the association between autonomy-supportive behaviors and positive motivational outcomes in sport (e.g., Amorose & Anderson-Butcher, 2007, 2015). In a study with adolescent athletes, Amorose and Anderson-Butcher (2015) found that autonomy-supportive coaching behaviors were positively related to self-determined and negatively related to controlling motivational

orientations. Collectively, these studies exemplify the potential benefits of coaches' autonomy-supportive leadership style for athletes' psychological and motivational outcomes.

Alternatively, controlling coach behaviors have been associated with negative psychological outcomes, such as higher performance anxiety, negative affect, and burnout, and lower perceived competence, relatedness, and autonomy (e.g., Amorose & Anderson-Butcher, 2015; Cheval, Chalabaev, Quested, Courvoisier, & Sarrazin, 2016). For example, Ramis, Torregrosa, Viladrich, and Cruz (2017) found that 9-18-year-old athletes' perceptions of controlling coach behaviors were associated with more controlling forms of motivation and higher performance anxiety. Overall, these results provide support that negative psychological outcomes are associated with perceptions of coach-controlling behaviors.

In summary, greater perceived autonomy-supportive coaching behaviors have consistently been related to positive psychological (e.g., higher perceived competence, autonomy, and relatedness) and motivational (e.g., self-determined orientations) outcomes, while controlling coaching behaviors have been related to negative self-perceptions and motivational outcomes.

Coach Motivational Climate

Across sport contexts, perceptions of a higher task-involving motivational climate have been associated with positive psychosocial outcomes, including higher perceived competence, effort, enjoyment, and intrinsic motivation, while perceptions of a higher

ego-involving climate have been associated with lower perceived competence, self-efficacy, and intrinsic motivation (e.g., Curran, Hill, Hall, & Jowett, 2015; Treasure, 1997; Zourbanos et al., 2016).

Correlational studies have focused on the association between motivational climate and motivational outcomes among teenage female athletes (e.g., Kipp & Weiss, 2013, 2015; M. R. Weiss et al., 2009). Among 15-18-year-olds, Kipp and Amorose (2008) discovered a positive association between perceived task-involving motivational climate and perceived relatedness, autonomy, competence, and self-determined motivation. Conversely, higher perceptions of an ego-oriented climate were negatively associated with motivational outcomes. Similarly, when surveying adolescent female soccer players, M. R. Weiss and colleagues (2009) found a positive association between perceptions of a coach-created task-involving climate and perceived competence, enjoyment, and intrinsic motivation. Overall, research with female adolescent athletes reveals the favorable association between a higher task-involving climate and adaptive psychosocial outcomes.

Intervention studies have also shown support for the beneficial effects of a task-involving climate (e.g., Coatsworth & Conroy, 2006; Treasure, 1997). Theeboom, De Knop, and Weiss (1995) examined the effects of task- and ego-involving climates in a 4-week martial arts unit among 8- to- 12-year-old summer camp participants. Post-intervention scores indicated the task-involving group scored higher on enjoyment and motor skills, and interviews revealed higher perceived competence and intrinsic motivation, compared to the ego-involving group. R. E. Smith et al. (2007) conducted an

intervention by assigning youth basketball teams to either a task-involving motivational climate (in which coaches were trained) or a control group. Athletes in the task-involving climate group showed decreased performance anxiety across the season, while athletes in the control group reported either no change or increased anxiety at the end of the season.

In summary, perceptions of a higher task-involving motivational climate have consistently been associated with positive psychosocial outcomes, such as perceived competence, relatedness, autonomy, and self-determined motivation. Conversely, perceptions of a higher ego-involving climate are associated with lower perceived competence and intrinsic motivation. These findings hold across age, sport type, and competitive level (e.g., Coatsworth & Conroy, 2006; Kipp & Amorose, 2008; Seifriz et al., 1992). Coaches have been studied extensively in the youth sport literature, but peers, such as close friends and teammates, represent another source of social influence on psychosocial and behavioral outcomes.

Research on Peer Influence and Youth Motivation in Sport

Peers are an important source of social and motivational influence, particularly in sport and physical activity during childhood and adolescence (A. L. Smith, 2007; M. R. Weiss & Stuntz, 2004). Sport is a public arena in which performance attempts and outcomes are highly visible and thus susceptible to evaluation by and comparison to teammates. As children age, opportunities for peer comparison and evaluation increase and can have a strong effect on psychological and motivational outcomes. Given the importance of peers in organized sport, it is necessary to understand the processes by which peers (i.e., teammates) influence each other's athletic experience. Research has

explored variations of peer constructs, such as peer group acceptance, friendship, peer leadership, and peer motivational climate.

Peer Group Acceptance

Peer group acceptance refers to how much an individual is liked or accepted by her or his peers (M. R. Weiss & Stuntz, 2004). In sport, this has been assessed through athletes' perceptions of how teammates view them, as well as through sociometric ratings. One recurrent finding is that peer acceptance and physical ability are strongly related (e.g., Dunn, Dunn, & Bayduza, 2007; M. R. Weiss & Duncan, 1992). Athletically-inclined boys perceive they are more favorably accepted by peers than those who showcase lower physical ability. Through surveys of adolescent sports camp participants, M. R. Weiss and Duncan (1992) found a strong association between perceived physical competence and perceived peer acceptance for boys and girls. Dunn et al. (2007) also found that higher-skilled adolescent boys and girls were rated higher in peer acceptance. Being athletically skilled is associated with more favorable peer group acceptance.

Higher peer group acceptance is also associated with more favorable self-perceptions, enjoyment, and motivational orientations and behaviors (e.g., A. L. Smith, 1999; A. L. Smith, Ullrich-French, Walker, & Hurley, 2006; Ullrich-French & Smith, 2009). Garn (2016) surveyed adolescent female volleyball players and found a positive association between perceived teammate acceptance and sport commitment, referring to athletes' desire to continue playing volleyball. This relationship was mediated through sport enjoyment, personal investments, social constraints, and involvement opportunities.

These studies show that higher perceived peer acceptance is associated with motivation to continue participation.

Peer group acceptance has also been studied from the vantage of social goal orientations (e.g., Petlichkoff, 1993a, 1993b; Stuntz & Weiss, 2009, 2015). Whereas task and ego goal orientations refer to defining success in self- and norm-referenced terms, respectively, social goal orientations refer to conceptualizing success in terms of social relationships with others. Thus, participants might feel they are successful if they are accepted by teammates, have close peer relationships, and/or attain approval from the coach. Stuntz and Weiss (2009) found that youth athletes who reported higher peer acceptance social orientations scored higher on intrinsic motivation, perceived competence, and enjoyment. Overall, peer group acceptance is an important factor in athletes' psychosocial and motivational outcomes.

Friendship

Friendship refers to a close, dyadic, mutual relationship (M. R. Weiss & Stuntz, 2004), and reflects one facet of sport social support. Having a close sport or physical activity friendship, as well as high friendship quality (e.g., esteem support, loyalty), is strongly related to positive psychosocial, motivational, and behavioral outcomes (e.g., Gardner, Magee, & Vella, 2016; M. R. Weiss & Smith, 1999, 2002). M. R. Weiss, Smith, and Theeboom (1996) interviewed 8- to 16-year-old sport camp participants to determine differences between perceptions of best sport friendships and other friendships. They identified mostly positive (e.g., companionship, intimacy, self-esteem enhancement, emotional support) and few negative (e.g., conflict, betrayal) qualities of sport

friendships. Subsequently, a measure of sport friendship quality was developed and validated (M. R. Weiss & Smith, 1999), and conceptually consistent relationships emerged between friendship qualities and enjoyment and motivation (M. R. Weiss & Smith, 2002).

Sport friendship quality has since been examined across ages and sport types, showing reliable relationships with motivational and psychosocial outcomes (e.g., Moran & Weiss, 2006; A. L. Smith, Balaguer, & Duda, 2006; Ullrich-French & Smith, 2006, 2009). Among adolescent students, A. L. Smith (1999) found that higher ratings of close friendship in physical activity (along with peer group acceptance) predicted higher physical self-worth, positive affective responses to physical activity, and physical activity motivation. Peer influence was positively related to physical activity behavior only for females. A. L. Smith, Ullrich-French, and colleagues (2006) examined relationships between peer profiles (group acceptance, positive friendship quality, conflict) and psychological variables (e.g., perceived competence, enjoyment, self-determined motivation), with positive peer profiles associated with more adaptive motivational outcomes (e.g., higher levels of perceived ability, enjoyment, and satisfaction). These studies illuminate the multifaceted influence of friendship quality in athletes' sport experiences.

Friendship has also been studied in terms of social support and constraints on sport commitment (W. Weiss, 2015; W. M. Weiss & Weiss, 2007; W. M. Weiss, Weiss, & Amorose, 2010). Sport commitment entails the desire and resolve to participate in sport, and can be influenced by enjoyment, investments, and perceived benefits and costs.

Perceived social support (encouragement from significant others, through feelings of approval or admiration) and constraint (pressure from significant others, through feelings of obligation) are key determinants of desire to continue participation. W. M. Weiss and Weiss (2007) examined developmental differences in sport commitment among female gymnasts by age (8-11, 11-14.5, and 14.5-18 year-olds) and competitive level (lower and higher). Perceived best friend and teammate constraints positively predicted sport commitment in the youngest group and both competition levels. This shows the potential influence of teammates and non-sport peers on motivational outcomes.

Peer Leadership

The majority of sport leadership research has focused on coaches, but teammates also represent an important source of leadership. Peers can be leaders through formal roles, such as team captains, and informal roles, such as emergent leaders (Glenn & Horn, 1993; Moran & Weiss, 2006). Sport participation is highly interactive by nature—athletes work with coaches and teammates to accomplish objectives—and provides opportunities to develop and demonstrate leadership skills (Gould, 2016).

Research has examined correlates of peer leadership behaviors, such as psychosocial attributes and physical ability (e.g., Glenn & Horn, 1993; Price & Weiss, 2011, 2013). Among female adolescent athletes, Moran and Weiss (2006) found that soccer ability was key to leadership rankings by coaches and peers, whereas self-rated leadership was associated with higher perceived competence, peer acceptance, friendship quality, instrumentality, and expressiveness rather than athletic ability. Additionally, Price and Weiss (2011) discovered that athletes higher in perceived competence, intrinsic

motivation, and perceived peer acceptance were rated highly on leadership behaviors by teammates.

Other studies explored the relationship between peer leadership behavior, performance, and psychological outcomes, such as enjoyment, intrinsic motivation, cohesion, and collective efficacy (e.g., Fransen, Boen, Vansteenkiste, Mertens, & Vande Broek, 2018; Fransen, Steffens, et al., 2016). For example, Price and Weiss (2013) found that transformational peer leadership behaviors were predictive of task and social cohesion among adolescent female soccer players. Fransen, Steffens, and colleagues (2016) conducted an experiment with adolescent soccer players to determine associations among peer leadership, collective efficacy, and team confidence. Experimental conditions included manipulating the leadership behavior of the team captain (expressing high, neutral, or low confidence in teammates through body language and feedback) during team and individual soccer drills. Team captain behavior influenced members' confidence in team success and collective efficacy. Overall, these studies show the potential influence of peer leaders on a host of sport-related outcomes.

Peer Motivational Climate

Similar to the coach motivational climate, the peer motivational climate refers to the social environment created by teammates that colors how competence and success are assessed (Ntoumanis, Vazou, & Duda, 2007). Peer motivational climates are considered task-involving, where success is viewed in self-referenced terms, or ego-involving, where success is viewed in norm-referenced terms. In recent years, studies have paid increased

attention to understanding the influence of the peer motivational climate on athlete outcomes (e.g., Jöesaar, Hein, & Hagger, 2012; Vazou, 2010; Vazou et al., 2005, 2006).

Through interviews with youth athletes, Vazou et al. (2005) discovered five peer motivational climate dimensions—improvement, relatedness support, effort, intra-team competition and ability, and intra-team conflict. Subsequently, Vazou and colleagues validated a measure of peer motivational climate (Ntoumanis & Vazou, 2005) and investigated the concurrent influence of peer and coach motivational climate on physical self-worth, enjoyment, and trait anxiety among adolescent athletes (Vazou et al., 2006). Higher perceptions of task-involving peer and coach climates were related to higher enjoyment and self-worth and lower anxiety, but peer motivational climate was more strongly associated with self-worth and enjoyment compared to coach motivational climate. They also found gender differences in climate perceptions, as males reported higher perceptions of coach and peer ego-involving climates and females reported higher perceptions of coach and peer task-involving climates.

Since Vazou and colleagues' (2005, 2006) foundational work on peer motivational climate, research has ensued on the relationship between peer motivational climate and psychosocial and motivational outcomes (e.g., Ingrell et al., 2016; Keegan, Spray, Harwood, & Lavallee, 2010; Ommundson, Roberts, Lemyre, & Miller, 2005). Utilizing focus groups of 7-11 year-old athletes, Keegan and colleagues (2009) identified positive and negative components of the peer-created climate related to athlete motivation. Participants discussed how teammates enforced an ego-involving motivational climate when they emphasized normative comparison, intra-team rivalry,

and conflict, which resulted in decreased motivation. Conversely, participants explained how teammates created task-involving climates when they encouraged team collaboration, emphasized effort, and displayed confidence in teammates, fostering motivation.

In summary, peer motivational climate is both similar to and distinct from coach motivational climate. Across sports, ages, competition levels, and genders, perceptions of a higher mastery peer climate have been linked with positive psychosocial outcomes, such as higher self-worth, enjoyment, and intrinsic motivation (e.g., Ingrell et al., 2016; Keegan et al., 2009; Vazou et al., 2006). Given the interactive nature of sport, coaches and peers do not act in a vacuum; thus, it is imperative to examine the joint impact of these two prominent social sources on athlete experience.

Research on the Simultaneous Influence of Coaches and Peers

Recent studies have concurrently examined the relationship of coach and teammate behaviors and athlete motivational outcomes, allowing a direct comparison of differential associations with psychological and behavioral variables (e.g., Kipp & Weiss, 2013, 2015; Vazou, 2010). Coaches and peers exhibit unique associations with motivational outcomes such as perceived competence, autonomy, relatedness, and affect.

Studies have explicitly examined the combined influence of coach and peer leadership on athletes' psychosocial and team outcomes (e.g., Fransen, Decroos, Vande Broek, & Boen, 2016; Glenn & Horn, 1993). Price and Weiss (2013) surveyed adolescent competitive female soccer players and found strong associations between transformational coach leadership and psychosocial outcomes (e.g., enjoyment), task

cohesion, and collective efficacy, while transformational peer leadership was uniquely related to task and social cohesion. In a study with adolescent athletes, Fransen, Decroos, et al. (2016) discovered that the quality of coach leadership behavior (as a task, motivational, and social leader) was a stronger predictor of team identity and social cohesion than peer leadership (as a task, motivational, and social leader). However, peer leadership was more strongly related to task cohesion and collective efficacy than coach leadership due to athletes' perceived control over their team's ability to function as a unit.

Other research has specifically studied peer- and coach-created motivational climates in relation to psychosocial and motivational outcomes (e.g., Garcia-Calvo et al., 2014; Jöesaar, Hein, & Hagger, 2011, 2012). Garcia-Calvo and colleagues (2014) conducted a longitudinal investigation of peer and coach climates among adult semi-professional soccer players over a 22-week season. Athletes who perceived higher task-involving climates (coach and peer) reported higher task and social cohesion and satisfaction, while athletes who perceived higher ego-involving climates (coach and peer) reported lower team cohesion and satisfaction. When compared to teammates, a higher task-involving coach climate was the strongest predictor of cohesion and athlete satisfaction. This suggests the coach motivational climate may be a stronger influence on team cohesion for adult professional players, whereas less is known about the relative influence among adolescent athletes. Overall, these studies show that coaches and peers may exert unique influences on athlete motivational outcomes.

Research on Group Motivation in Youth Sport

Coach and teammate leadership behaviors and styles affect athlete self-perceptions, affective responses, and motivation, and they also influence team cohesion. Carron and his colleagues laid the foundation for studying cohesion among sport teams (e.g., Carron, 1982; Carron & Brawley, 2008; Carron, Bray, & Eys, 2002; Carron, Hausenblaus, & Eys, 2005; Carron et al., 1985). Cohesion is defined as, "a dynamic process that is reflected in the tendency for a group to stick together and remain united in pursuit of its goal and objectives" (Carron, 1982, p. 124). Within the sport domain, perceptions of cohesion can positively or negatively influence athletes' and teams' performance and psychological experiences. The following sections describe theoretical and empirical perspectives on group cohesion, with particular emphasis on coach and peer influences on group cohesion.

Group Cohesion Model

Carron and colleagues developed a theoretical framework of group cohesion applicable to the sport domain (Carron, 1982; Caron et al., 1985, 2002). Two overarching components include an individual's perceptions of the group as a totality (group integration) and the individual's perceptions of potential personal benefits from group participation (individual attraction). These components are further deconstructed into task and social cohesion—task cohesion is defined as similarity of members' goals and ability to work towards common goals, while social cohesion is defined as developing and maintaining teammate relationships. These components result in four aspects of cohesion: group-integration task, group-integration social, individual attraction to group-task, and

individual attraction to group-social (see Carron & Brawley, 2008, for an extensive review).

Carron and colleagues (Carron, 1982; Carron et al., 2005) further identified several correlates of cohesion, including environmental, personal, team, and leadership factors. Environmental influences include organizational elements such as objective goals (club-wide focus on winning versus development), and contractual obligations (season-long commitment to a team). Personal factors include an individual's cognitions (e.g., efficacy beliefs, attributions for responsibility), motives (e.g., goal orientation, satisfaction), behaviors (e.g., adherence, effort), and demographic variables (e.g., age, race). Team factors include ability, goals, performance, and desire for team success, and leadership influences include coach and teammate behaviors and coach-athlete relationships (see Carron & Brawley, 2008, for a review). In the following section, coach and teammate influences on cohesion are highlighted.

Coach and Teammate Influence and Group Cohesion

Several studies have examined coach leadership style in relation to task and social cohesion (e.g., Gardner, Shields, Bredemeier, & Bostrom, 1996; Widmeyer & Williams, 1991). Westre and Weiss (1991) surveyed high school football players and discovered a positive relationship of coach social support, training and instruction, and positive feedback with perceived task cohesion. Similarly, Gardner and colleagues (1996) found that collegiate athletes' perceptions of greater coach behaviors of training and instruction, social support, positive feedback, and democratic leadership style were related to higher perceived task cohesion, and greater perceived social support was positively associated

with social cohesion. Additionally, in a meta-analysis of 24 coach leadership and cohesion studies, Kim and Cruz (2016) found that coach training and instruction and positive feedback behaviors exhibited a moderate positive association with perceived task cohesion; coach social support held a moderate positive association with perceived social cohesion.

Furthermore, studies have examined the association between coach motivational climate and team cohesion (e.g., Eys et al., 2013; Horn et al., 2012; McLaren et al., 2015). Eys and colleagues (2013) found a positive association between perceptions of a task-involving climate, and a negative association between perceptions of an ego-involving climate, with team cohesion among adolescent male and female athletes in a variety of sports. Horn and colleagues (2012) surveyed 16-18 year-old athletes from a variety of sports and discovered a higher task-involving coach climate was associated with higher task and social cohesion. Furthermore, a higher ego-involving climate was not negatively associated with perceived cohesion if athletes also perceived a higher task-involving climate. These studies show that coaching climate is an important leadership factor related to team cohesion.

Studies have also linked peer relationships, leadership behaviors, and motivational climate with task and social cohesion (e.g., Loughead et al., 2016; Price & Weiss, 2013). Bruner and colleagues (2014) tracked high school teams across their seasons and discovered that athletes who reported greater prosocial teammate behaviors (providing positive feedback), ingroup ties (perceptions of belongingness within the team), and ingroup affect (positive feelings towards teammates) were associated with

greater cohesion than athletes lower on these variables. McLaren and colleagues (2017) examined peer motivational climate and group cohesion with adolescent soccer players across one season and found a positive association between perceived task-involving climate and task and social cohesion, and a negative association between perceived ego-involving climate and task cohesion. These studies exemplify similar and unique influences of peer climate on team cohesion aside from the influence of coaches.

Team Cohesion and Motivational and Performance Outcomes

While it has been established that a host of factors are related to perceived cohesion, studies have assessed how perceived cohesion is related to motivational and performance outcomes (e.g., Carron, Colman, Wheeler, & Stevens, 2002; Williams & Widmeyer, 1991). In a meta-analysis of 46 studies, Carron and colleagues (2002) found moderate to large effect sizes between task and social cohesion and team success, particularly for female athletes. Evans and Dion (2012) performed a meta-analysis of 16 studies and found a moderate effect size for the cohesion-performance relationship—individuals who reported higher cohesion also reported greater team success.

Studies have also examined how perceived cohesion is associated with intrinsic motivation and intention to return to sport and physical activity (e.g., Carron & Ball, 1977; Spink, 1995). Spink, Wilson, and Odnoken (2010) discovered that higher perceived task cohesion was the strongest predictor of return rates the following season with elite junior male ice hockey players. Halbrook, Blom, Hurley, Bell, and Holden (2012) found a positive association of perceived task and social cohesion with intrinsic motivation

among collegiate athletes. Overall, these studies support the association between team cohesion and motivational outcomes.

Purpose of the Present Study

Motivational theories and research reveal that coaches and peers are significant social sources who impact adolescent athletes' psychosocial and behavioral outcomes, such as self-perceptions, motivational orientations, and group cohesion (e.g., Amorose, 2007; Horn, 2008; M. R. Weiss et al., 2012). Coaches influence athletes through feedback and reinforcement, leadership style, and motivational climate, and peers influence teammates through friendship, group acceptance, leadership style, and motivational climate (e.g., A. L. Smith, 2007; M. R. Weiss & Stuntz, 2004). Thus, it is important to consider both coach and teammate influence in studies of athlete and team motivation.

To date, coaches' and teammates' behaviors have been simultaneously studied in relation to team members' individual and group outcomes (e.g., Kipp & Weiss, 2013, 2015; McLaren et al., 2017; Price & Weiss, 2013). Research with adolescent athletes has shown that coach leadership behaviors are related to individual outcomes (e.g., perceived competence) and team cohesion, while peer leadership behaviors have been associated with intrinsic motivation, cohesion, and collective efficacy (e.g., Fransen et al., 2018; Fransen, Decroos, et al., 2016; Fransen, Steffens, et al., 2016). However, it appears that only one study has examined the simultaneous association of coach- and peer-motivational climates with team cohesion, but this was conducted with adult semi-

professional soccer players (Garcia-Calvo et al., 2014). Thus, it remains unknown how coach and peer climates relate to team cohesion among adolescent athletes.

The majority of research on coach and peer influence has been conducted in relation to individual athlete outcomes, whereas fewer studies have focused on group motivation, such as cohesion, especially among youth and adolescent teams (e.g., Eys et al., 2013; Eys, Loughead, Bray, & Carron, 2009). According to the group cohesion model (Carron, 1982), leadership factors are important sources of team cohesion. Teammates and coaches can both significantly affect team members' perceptions of cohesiveness through their leadership style, feedback behaviors, and created climate. Whereas studies have investigated coach leadership style (e.g., autonomy-supportive, social support) in relation to team cohesion, only Eys et al. (2013) and McLaren et al. (2015) have examined coach motivational climate and group cohesion among female and male adolescent athletes in a variety of sports. These studies found that higher perceptions of a task-involving climate were associated with higher cohesion, whereas higher perceptions of an ego-involving climate were associated with lower cohesion. Because cohesion is a desired attribute of interactive teams and has been linked to greater enjoyment and motivation among team members, it is pertinent to further examine the relationship among coach- and peer climates and team cohesion in adolescent sport.

Thus, based on theory and research on individual motivation and group cohesion, the purpose of this study was to examine coach and teammate motivational climate in relation to group cohesion among female, adolescent volleyball players. This study extends past research by observing the simultaneous association of coach and peer

motivational climate, a key social-environmental factor in multiple motivational theories, with team cohesion in a sample of female adolescent athletes. Coaches and teammates are important sources of physical competence information and motivation during this developmental period (Horn, 2004; M. R. Weiss & Stuntz, 2004). Thus, coach- and peer-motivational climates are important factors to consider for team cohesion.

Several hypotheses are presented based on relevant peer and coach leadership and team motivation research (e.g., Eys et al., 2013; Price & Weiss, 2013; Vazou et al., 2005, 2006). First, perceptions of coaches' and teammates' emphasis on a task-involving motivational climate will be positively associated with task and social cohesion. More specifically, certain components of a task-involving climate will be related to greater task cohesion—cooperative learning and effort/improvement (coach task-involving climate) and improvement and effort (peer task-involving climate). For social cohesion, important role (coach task-involving climate) and relatedness support (peer task-involving climate) are hypothesized to be positively associated. Second, perceptions of coaches' and teammates' emphasis on an ego-involving climate will be negatively associated with task and social cohesion. More specifically, certain components of an ego-involving climate will be negatively associated with cohesion—unequal recognition and intra-team member rivalry (coach ego-involving climate) and intra-team competition/ability and intra-team conflict (peer ego-involving climate). Finally, it is hypothesized that perceptions of the coach-created climate will be more strongly related to task cohesion, while perceptions of the peer-created climate will be more strongly related to social cohesion.

CHAPTER 2

METHOD

Participants

Study participants (N = 235) included 14- to 18-year-old female athletes (M = 16.3 years, SD = .97) participating on Junior Olympic volleyball club teams. Female adolescent athletes were chosen as the target sample because coaches and peers are salient sources of competence information and motivation during this developmental period (Horn, 2004; M. R. Weiss & Stuntz, 2004). Volleyball was chosen because it is an interactive team sport in which perceptions of coach- and peer-motivational climates should color perceptions of cohesion. Volleyball clubs were identified based on two inclusion criteria: (a) they fielded teams for 15-18 year-olds (which may include 14 year-olds due to birthdate regulations), and (b) they were a member of either (or both) the Junior Volleyball Association or USA Volleyball Association, the national governing bodies of Junior Olympic volleyball.

Participants comprised 34 competitive, travel teams across 6 clubs (1-11 players per team completed the survey; M = 6.91, SD = 2.70). They had played organized volleyball for about 5 years (M = 5.4, SD = 1.8), and had been with their head coach for one year (M = 1.2, SD = .64). Participants identified themselves as Caucasian (84.3%), African-American (2.1%), Asian (3.0%), Latina (1.3%), and Multi-racial (9.4%). Of the 34 teams, 16 had a female head coach, 14 had a male head coach; gender of head coach was not reported for 3 teams.

Measures

The main constructs for this study were assessed using valid, reliable, and developmentally-appropriate self-report measures. These measures are described in the following sections.

Coach motivational climate. Athlete perceptions of the coach-created motivational climate were assessed using the *Perceived Motivational Climate in Sport Questionnaire-2* (PMCSQ-2) (Newton, Duda, & Yin, 2000). The PMCSQ-2 includes 33 items that align with a task-involving (17 items) or ego-involving climate (16 items). Each of these scales is further divided into three subscales—task-involving climate includes important role (5 items), effort/improvement (8 items), and cooperative learning (4 items). Ego-involving climate subscales include punishment for mistakes (6 items), unequal recognition (7 items), and intra-team member rivalry (3 items). All questions begin with the stem, "On this team…" and responses are given on a 5-point Likert scale, ranging from strongly disagree to strongly agree. Items are averaged by subscale to determine each respondent's score. Psychometric testing with 14- to 18-year-old adolescents indicated factorial and concurrent validity and internal consistency reliability (Newton et al., 2000). The PMCSQ-2 has shown scale reliability in other studies using samples of adolescent athletes (e.g., Curran et al., 2015; Kipp & Amorose, 2008; M. R. Weiss et al., 2009). Table 1 shows the items for the PMCSQ-2.

Peer motivational climate. Athlete perceptions of the peer motivational climate were measured using the *Peer Motivational Climate in Youth Sport Scale* (PMCYS)

(Ntoumanis & Vazou, 2005). The PMCYS consists of 21 items aligned with a task-involving (12 items) or ego-involving climate (9 items).

The task-involving scale includes three subscales: improvement (4 items), relatedness support (3 items), and effort (5 items). The ego-involving subscales include intra-team competition/ability (5 items) and intra-team rivalry (4 items). All questions begin with the stem, "On this team, most athletes…", and responses are recorded on a 7-point Likert scale, ranging from strongly disagree to strongly agree. Items are averaged by subscale to determine each respondent's score. Psychometric testing with 11-17 year-old athletes showed factorial and construct validity and internal consistency reliability (Ntoumanis & Vazou, 2005). The PMCYS has shown scale reliability in studies with other adolescent samples (e.g., Jöesaar et al., 2011, 2012; A. L. Smith, Gustafsson, & Hassmén, 2010; Vazou, 2010). Table 2 shows the items for the PMCYS.

Team cohesion. Athlete perceptions of task and social cohesion were assessed using the *Youth Sport Environment Questionnaire* (YSEQ) (Eys et al., 2009). The YSEQ includes 18 items associated with social (9 items) and task cohesion (9 items). Responses are given on a 9-point Likert scale, ranging from strongly disagree to strongly agree. Items are averaged across subscales to determine participants' scores. Psychometric testing with athletes ages 13-17 years indicated factorial validity and internal consistency reliability (Eys et al., 2009). The YSEQ has shown reliability in studies with other adolescent athlete samples (e.g., Bruner et al., 2014). Table 3 shows the items for the YSEQ.

Table 1

Scales, Subscales, and Items for PMCSQ-2 (Newton et al., 2000)

Task-Involving Climate	Cooperative Learning	1. players help each other learn. 2. the coach encourages players to help each other. 3. the players really `work together' as a team. 4. the players help each other to get better and excel.
	Important Role	1. each player contributes in some important way. 2. the coach believes that all of us are crucial to the success of the team 3. players at all skill levels have an important role on the team. 4. each player has an important role. 5. each player feels as if they are an important team member.
	Effort/Improvement	1. the coach wants us to try new skills. 2. players feel good when they try their best. 3. the coach makes sure players improve on skills they're not good at. 4. players feel successful when they improve. 5. trying hard is rewarded. 6. the coach emphasizes always trying your best. 7. players are encouraged to work on their weaknesses. 8. the focus is to improve each game/practice.
Ego-Involving Climate	Punishment for Mistakes	1. the coach gets mad when a player makes a mistake. 2. the coach thinks only the starters contribute to the success of the team. 3. players are taken out of a game for mistakes. 4. the coach yells at players for messing up. 5. players are punished when they make a mistake. 6. players are afraid to make mistakes.
	Unequal Recognition	1. the coach gives most of his or her attention to the stars. 2. the coach has his or her own favorites. 3. only the players with the best `stats' get praise. 4. the coach makes it clear who he or she thinks are the best players. 5. if you want to play in a game you must be one of the best players. 6. only the top players `get noticed' by the coach. 7. the coach favors some players more than others.
	Intra-team Member Rivalry	1. the coach praises players only when they outplay team-mates. 2. players are encouraged to outplay the other players. 3. players are `psyched' when they do better than their team-mates in a game.

Table 2

Scales, Subscales, and Items for PMCYS (Ntoumanis & Vazou, 2005)

Task-Involving Climate	Improvement	1. Help each other improve 2. Offer to help their teammates develop new skills 3. Work together to improve the skills they don't do well 4. Teach their teammates new things
	Relatedness Support	1. Make their teammates feel valued 2. Make their teammates feel accepted 3. Care about everyone's opinion
	Effort	1. Encourage their teammates to try their hardest 2. Praise their teammates who try hard 3. Are pleased when their teammates try hard 4. Set an example on giving forth maximum effort 5. Encourage their teammates to keep trying after they make a mistake
Ego-Involving Climate	Intra-team Competition/Ability	1. Encourage each other to outplay their teammates 2. Care more about the opinion of the most able teammates 3. Try to do better than their teammates 4. Look pleased when they do better than their teammates 5. Want to be with the most able teammates
	Intra-team Conflict	1. Make negative comments that put their teammates down 2. Criticize their teammates when they make mistakes 3. Complain when the team doesn't win 4. Laugh at their teammates when they make mistakes

Table 3

Subscales and Items for YSEQ (Eys et al., 2009)

Social	1. I invite my teammates to do things with me. 2. Some of my best friends are on this team. 3. I do not get along with members of my team. 4. We hang out with one another whenever possible. 5. I contact my teammates often (phone, text messages, internet). 6. I spend time with teammates. 7. I am going to keep in contact with my teammates after the season ends. 8. We stick together outside of practice. 9. We contact each other often (phone, text messages, internet).
Task	1. We all share the same commitment to our team goals. 2. As a team, we are all on the same page. 3. I like the way we work together as a team. 4. As a team, we are united. 5. This team gives me enough opportunities to improve my own performance. 6. Our team does not work well together. 7. I am happy with my team's level of desire to win. 8. My approach to playing is the same way as my teammates. 9. We like the way we work together as a team.

Demographic items. Participants completed items for age, birthday, grade, team, ethnicity, years of experience playing organized volleyball, years playing with their head coach, and gender of their head coach.

Procedure

After receiving approval from the university's institutional review board (see Appendix A), 14 volleyball clubs fitting the inclusion criteria were identified. I sent a letter of interest (see Appendix B) via email to each club director stating the study purpose and inviting player participation. I followed up with the club director one week after sending the letter to determine participation interest. If the director agreed to allow their athletes to participate in the study (6 clubs), I worked with them to establish a date to introduce the study to the athletes and pass out parental information sheets (see Appendix C) at the club's practice facility. Because waiver of documentation of parental

consent was provided for the study, only players of parents who contacted the club director or researchers indicating they did not want their daughters participating or players who did not provide assent to participate were excluded from the study.

Prior to the main data collection, a pilot study was conducted with eight female adolescent volleyball players (ages 16-17 years) at the primary investigator's club to rehearse survey instructions, determine if any wording changes were needed, and assess amount of time needed for survey completion. Participants did not verbalize any questions regarding item understanding and completed surveys in 10-15 minutes.

For the main data collection, I worked with club directors to coordinate a second visit to administer surveys one to two weeks after the first meeting. Surveys were administered 3-4 months after the first practice of the season to enable players to appraise coach and peer climate and team cohesion. Data collection times were either before or after team practices. A data collection space was identified with minimal outside distractions. Coaches, parents, club directors, and non-participating players were asked to wait outside of the study area until all surveys were completed and turned into the primary investigator or assistant. Players who completed the survey prior to practice arrived at the practice facility and went directly to the survey space, so they did not interact with coaches prior to the study. When surveys were administered after practice, coaches were asked to leave the space before the study was introduced, and any players who had to leave early were then excused. These procedures ensured coaches and administrators were unaware of who participated in the study and allowed for participant anonymity. I introduced the study purpose to the athletes and explained the assent process

(see Appendix D), after which participants provided written assent and completed the survey in about 15 minutes. The survey as presented to players is seen in Appendix E. Once completed, I thanked athletes for their participation.

Design and Data Analysis

The study employed a multivariate, correlational design to investigate the association of coach- and peer-created motivational climate with task and social cohesion. A multivariate multiple regression analysis was conducted to determine if coach- and peer- motivational climate subscales (predictor variables) were significantly related to task and social cohesion (criterion variables). In the event of a statistically significant multivariate correlation, follow-up canonical correlation procedures were conducted. Canonical loadings were examined to determine which coach and peer climate subscales and which cohesion components contributed to the relationship among variables. Loadings equal to or greater than .30 denote variables that meaningfully contribute to the multivariate relationship (Tabachick & Fidell, 2013). Finally, the redundancy index reveals the amount of variance in team cohesion explained by the motivational climate scales. A value equal to or greater than 10% is deemed a significant and meaningful effect size (Tabachick & Fidell, 2013). Findings were interpreted relative to the study purposes and hypotheses.

CHAPTER 3

RESULTS

Scale Reliabilities

Generally, scales exhibiting an alpha coefficient of .70 or higher are deemed to be an acceptable index of internal consistency reliability (Tabachick & Fidell, 2013). All subscales for coach task-involving climate, peer task-involving climate, peer ego-involving climate, and team cohesion achieved acceptable alpha coefficients (see diagonal of Table 4). Alpha coefficients for coach ego-involving climate subscales of punishment for mistakes and unequal recognition were also acceptable, but the subscale for intra-team rivalry showed a value of .66 and thus was removed from further analyses.

Descriptive Statistics

Scale correlations, means, and standard deviations can be seen in Table 4. Correlations among coach task-involving (r = .54 - .62) and coach ego-involving climate subscales (r = .66) were moderate to moderately high. Peer task-involving (r = .60 - .64) and ego-involving climate subscales (r = .49) showed moderate to moderately-high correlations. Task and social cohesion subscales were moderately correlated (r = .54). Athletes reported relatively high levels of coach task-involving climate, relatively low levels of coach ego-involving climate, moderately-high levels of peer task-involving climate, and moderate levels of peer ego-involving climate. Athletes reported moderately-high levels of task and social cohesion.

Table 4

Correlations and Descriptive Statistics (N = 235)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Coach Cooperative Learning	.74											
2. Coach Important Role	.58	.82										
3. Coach Effort/Improvement	.62	.54	.78									
4. Coach Punishment for Mistakes	-.17	-.44	-.26	.84								
5. Coach Unequal Recognition	-.13	-.58	-.38	.66	.87							
6. Peer Improvement	.42	.42	.52	-.21	-.35	.80						
7. Peer Relatedness Support	.65	.49	.48	-.18	-.36	.59	.78					
8. Peer Effort	.64	.41	.59	-.13	-.25	.60	.64	.79				
9. Peer Intra-team Competition/Ability	-.22	-.37	-.17	.36	.53	-.19	-.33	-.14	.81			
10. Peer Intra-team Conflict	-.41	-.41	-.28	.38	.42	-.34	-.48	-.35	.49	.71		
11. Task Cohesion	.70	.53	.57	-.13	-.27	.57	.68	.68	-.25	-.45	.90	
12. Social Cohesion	.47	.24	.30	.09	.00	.41	.47	.43	.01	-.12	.54	.91
M	4.00	3.94	4.20	2.45	2.60	4.74	5.29	5.76	4.01	3.37	6.10	6.25
SD	0.67	0.73	0.55	0.83	0.92	1.10	1.21	0.89	1.29	1.25	1.62	1.77
Scale Range	1-5	1-5	1-5	1-5	1-5	1-7	1-7	1-7	1-7	1-7	1-9	1-9

Note. Alpha coefficients are presented along the diagonal.

Relationship of Coach and Peer Motivational Climate with Team Cohesion

A multivariate multiple regression analysis was conducted to determine the relationship of coach- and peer-created motivational climates with task and social cohesion. Climate subscales served as predictor variables and task and social cohesion served as criterion variables. A statistically significant relationship emerged, Wilks' $\lambda = .30$, F (20, 446) = 18.3, $p < .0001$. A follow-up canonical correlation analysis revealed a multivariate correlation of $R_c = .81$ ($R_c^2 = .66$), indicating a strong association between motivational climate and cohesion variables.

Canonical loadings were observed to determine which specific variables contributed to the multivariate relationship between the two sets of variables (see Table 5). Loadings > .30 indicate a significant contribution to the multivariate relationship (Tabachick & Fidell, 2013). Among the climate variables, coach cooperative learning (.88), peer relatedness support (.85), and peer effort (.83) contributed most strongly to the overall relationship, followed by peer improvement (.72), coach effort/improvement (.69), coach important role (.63), peer intra-team conflict (-.52), and coach punishment for mistakes (-.31). Coach unequal recognition (-.13) and peer intra-team competition/rivalry (-.28) did not reach the .30 threshold. Among the criterion variables, both task (.99) and social cohesion (.65) significantly contributed to the relationship.

Coach cooperative learning, important role, and effort/improvement, and peer improvement, relatedness support, and effort (all task-involving subscales) were positively related to task and social cohesion. Coach punishment for mistakes and peer intra-team conflict (ego-involving subscales) were negatively related to task and social

cohesion. The redundancy index showed that 46.1% of the variance in team cohesion was explained by motivational climate variables. This value is above the 10% threshold deemed significant and meaningful (Tabachick & Fidell, 2013).

Table 5

Canonical Loadings (N=235)

Variable	Loading
Predictor Variables	
Coach Cooperative Learning	.88
Coach Important Role	.63
Coach Effort/Improvement	.69
Coach Punishment for Mistakes	-.31
Coach Unequal Recognition	-.13
Peer Improvement	.72
Peer Relatedness Support	.85
Peer Effort	.83
Peer Intra-team Competition/Ability	-.28
Peer Intra-team Conflict	-.52
Criterion Variables	
Task Cohesion	.99
Social Cohesion	.65

These findings suggest that athletes who reported higher levels of coach and peer task-involving climate, and lower levels of coach and peer ego-involving climate, rated their teams higher in task and social cohesion. When athletes perceived that their coaches believed all players were critical to the team and that their peers taught them new things,

they felt united and enjoyed spending time with their teammates. When athletes perceived that their coaches yelled at them for making mistakes or that their teammates made negative comments to put teammates down, athletes felt their team did not work well together or get along. These results mean that female adolescent athletes felt a sense of solidarity in terms of team goals and intra-team friendships when they perceived coaches and teammates emphasized cooperative learning, effort, and relatedness support and minimized punishment for mistakes and intra-team conflict.

CHAPTER 4

DISCUSSION

The purpose of this study was to examine the simultaneous association of coach- and peer-created motivational climates with task and social cohesion among adolescent female athletes. A task-involving climate is created when coaches and teammates emphasize self-referenced forms of achievement (learning, effort); an ego-involving climate is created when they focus on norm-referenced forms of success (winning, social comparison). Task cohesion refers to similarity of team members' goals and ability to work together, whereas social cohesion refers to developing and maintaining intra-group relationships. In the following paragraphs, I discuss key results and theoretical and practical implications.

Based on theory and related research, it was hypothesized that athletes' higher perceptions of coach and peer task-involving climates would be positively associated with task and social cohesion, while higher perceptions of ego-involving climate would be negatively associated. Specifically, it was predicted that components of coach (i.e., cooperative learning and effort/improvement) and peer task-involving climates (i.e., improvement and effort) would be related to higher task cohesion**.** Important role (coach task-involving) and relatedness support (peer task-involving) were expected to be related to higher social cohesion. In addition, coach climate was expected to more strongly relate with task cohesion, while peer climate was expected to more strongly relate with social cohesion. These hypotheses were partially supported. First, a strong and positive

association emerged between coach- and peer- task-involving climates and task and social cohesion, including all task-involving subscales. Coach cooperative learning, important role, and effort/improvement, and peer improvement, relatedness support, and effort were all associated with feelings of greater solidarity in team goals (task cohesion) and relatedness with teammates (social cohesion). All six task-involving subscales were moderately-high to highly related to task and social cohesion.

Regarding coach and peer ego-involving climates, coach punishment for mistakes and peer intra-team conflict were negatively associated with perceptions of a team's ability to work together and collectively connect. Coach punishment showed a low and peer conflict a moderate negative relationship with cohesion. Coach unequal recognition and peer intra-team competition/ability were not significantly related. Finally, rather than coach climate being more strongly associated with task cohesion, and peer climate being more strongly related to social cohesion, both were equally and strongly related with task *and* social cohesion.

These results echo past findings examining the association between coach motivational climate and group cohesion (e.g., Eys et al., 2013; Horn et al., 2012). Eys and colleagues (2013) surveyed 13-17 year-old male and female adolescent athletes who participated in a variety of interdependent (e.g., basketball, soccer) and independent (e.g., wrestling, skiing) sports. There was a low positive association between perceptions of coach task-involving climate and social cohesion (r = .23), and a moderate positive association with task cohesion (r = .45). A low negative association between coach ego-involving climate and task cohesion emerged (r = -.18). In another study examining

coach motivational climate and cohesion, Horn et al. (2012) found that higher perceptions of a coach task-involving climate coupled with lower perceptions of an ego-involving climate were the strongest predictors of cohesion with 16-18-year-old male and female athletes participating in team sports (e.g., volleyball, hockey). Findings of the present study with female volleyball players similarly showed that a higher task-involving climate coupled with a lower ego-involving climate was the strongest predictor of task and social cohesion.

The present findings showed that athletes who perceived higher levels of peer task-involving and lower levels of peer intra-team rivalry reported higher social relatedness and goal solidarity with teammates. McLaren and colleagues (2017) surveyed 10-17-year-old male and female competitive soccer players and found a moderate positive association (r = .49) between peer task-involving climate and social cohesion, and a moderately-high positive association (r = .71) between peer task-involving climate and task cohesion. A low negative association (r = -.38) was identified between peer ego-involving climate and task cohesion and no relationship (r = -.19) with social cohesion. Further, early season perceptions of environments promoting improvement and effort showed low associations with mid-season goal and social connectedness as did early season ego-involving climate perceptions with task cohesion. The current study extends past research on teammate climate and team dynamics, as a moderately-high to high relationship emerged between peer improvement, relatedness support, and effort—components of a task-involving climate—with task and social unity, and a negative,

moderate relationship emerged between peer intra-team conflict—a component of an ego-involving climate—and task and social cohesion.

The present study extended past research by considering how coach and peer climates relate to cohesion in tandem among female adolescent athletes, a population particularly sensitive to social influence (Horn, 2004). The only other published study simultaneously examining these social groups was by Garcia-Calvo and colleagues (2014), but with semi-professional adult male soccer players. Athletes who reported a higher coach and teammate task-involving climate reported higher task and social cohesion, while those who reported a higher ego-involving climate reported lower task and social cohesion. They also found that higher perceptions of ego-involving climate factors were still associated with higher cohesion, but only *if* there were also higher perceptions of a task-involving emphasis. The current study exemplifies developmental considerations of the study's adolescent sample—where coaches and peers are equally important sources of information for confidence and motivation.

The present findings also differ from past studies on climate and cohesion (Garcia-Calvo et al., 2014), and coach and peer leadership and cohesion (e.g., Fransen, Decroos, et al., 2016; Price & Weiss, 2013). Fransen, Decroos, and colleagues (2016) surveyed male and female adult team sport participants (e.g., handball, volleyball, soccer) on teammate and coach leadership quality (how athletes perceived teammates and coaches fulfilled their task, motivational, and social leadership duties) and team identity attributes, including cohesion. Coach leadership quality was a stronger correlate of task (r = .54) and social cohesion (r = .38) compared to peer leadership quality with task (r =

.08) and social cohesion (r = .22). Discrepancy in findings between this and the current study could be attributed to developmental differences in adult and adolescent populations. Similarly, Price and Weiss (2013) found coach leadership behaviors were significantly related to task and social cohesion, but teammate leadership behaviors were only related to social cohesion among adolescent female soccer players. The sample used by Price and Weiss is comparable in developmental and personal characteristics as the current study, so slight differences in findings might likely be due to Price and Weiss's focus on coach and teammate transformational leadership behaviors compared to coach and teammate climate in the present study.

Studies have also been conducted on relationships of coach and peer leadership behaviors (a component of creating motivational climates) with team unity (e.g., Vincer & Loughead, 2010; Westre & Weiss, 1991). While the present study did not directly study coach and teammate leadership behaviors, findings can be placed in the context of research on leadership and team outcomes. Westre and Weiss (1991) surveyed male high school football players on coach leadership and team cohesion. A significant relationship emerged between coach leadership behaviors and team cohesion, specifically social support, training and instruction, positive feedback, and democratic style. With young adult (mean age 19.21 years) elite team sport athletes, Vincer and Loughead (2010) found higher perceptions of teammate training and instruction and social support behaviors were positively related to task and social cohesion. Athletes who reported higher peer autocratic behavior reported lower task and social cohesion. Overall, studies showcase the benefits of positive coach-athlete and teammate-athlete relationships through

leadership behaviors or motivational climate for positive team dynamics with adolescent female athletes.

Theoretical Implications

The results of this study support relationships guided by self-determination theory (Deci & Ryan, 1985), competence motivation theory (Harter, 1978), and achievement goal theory (Nicholls, 1989). These social-cognitive theories are consistent in positing that social sources, such as teammates and coaches, serve as major informational sources for athletes through feedback, interpersonal style, and motivational climate, which are associated with a host of psychosocial outcomes. These associations have been strongly supported in youth sport settings (e.g., Kipp & Amorose, 2008; A. L. Smith, 1999; M. R. Weiss et al., 2009).

Motivational climate is an important social-environmental factor in each theory. Coaches and teammates create motivational climates through their leadership, modeling, and feedback behaviors (Kipp & Amorose, 2008; Vazou, 2010). Studies have shown that coach and peer task-involving motivational climates are positively associated with psychosocial outcomes such as perceived competence, intrinsic motivation, and effort; there has been a consistently negative association between ego-involving climates and psychosocial outcomes (e.g., Kipp & Weiss, 2013, 2015; R. E. Smith et al., 2009; Vazou et al., 2006). Few studies have examined coach and peer motivational climates together with group cohesion. Thus, the current study extends the reach of self-determination theory, competence motivation theory, and achievement goal theory to group cohesion.

The results of this study also support Carron and colleagues' conceptual model of sport cohesion (Carron, 1982; Caron et al., 1985, 2002). They identified leadership and team factors as correlates of task and social cohesion, and studies in sport have provided support through coaching behaviors such as training and instruction, democratic leadership, and social support (e.g., Gardner et al., 1996; Kim & Cruz, 2016; Westre & Weiss, 1991). This study added to theoretical support for the model by finding a positive association between task-involving motivational climate and team cohesion, and a negative association between ego-involving climate and team cohesion, when working with adolescent female athletes.

A majority of studies utilizing the PMCSQ-2 (Newton et al., 2000) have created composite mastery and performance scores consisting of all subscales (e.g., Curran et al., 2015; Smith, Balaguer, et al., 2006; M. R. Weiss et al., 2009). This has limited the understanding of specific climate components (Harwood et al., 2008). The present study addressed this gap by looking at coach and peer climate components. However, in studies that have kept subscales separate, the intra-team rivalry subscale has often been removed due to low reliability (e.g., Halliburton & Weiss, 2002; Vazou et al. 2006). Consistent with these studies, the coach intra-team rivalry subscale was eliminated from statistical analysis due to low internal consistency reliability in this study. All of these studies examined youth or young adult athletes (ages 12–22 years). There are only three questions on this subscale, compared to five or six for other scales, which could explain the low reliability.

Practical Implications

The current results show that coaches and teammates who create task-involving motivational climates can have a positive impact on team goals and relationship unity. Thus, translating research findings to evidence-based best practices emphasizes the need to maximize coach and peer task-involving climate behaviors and minimize ego-involving climate behaviors. Based on literature on coaching, peers, and motivation (e.g., Horn, 2008; M. R. Weiss & Stuntz, 2004) and my personal experience as a youth coach, I offer strategies to foster perceptions of coach and teammate task-involving climates. Table 6 provides a number of strategies for fostering a coach task-involving climate that should result in favorable team cohesiveness. These include both behavioral and procedural suggestions. Coaches also provide opportunities for developing a peer task-involving climate and Table 7 presents strategies for how coaches can do so. Study results showed coach and peer climates were equally important in contributing to team task and social cohesion, so coaches must strive to create productive environments for cultivating successful coach-athlete and teammate-athlete connections.

These practical suggestions are directed specifically at adolescent female athletes. During the adolescent period (ages 13–18 years), significant emotional, social, and cognitive changes occur (Horn, 2004). During adolescence, athletes prioritize feedback from peers and coaches as sources of competence information, so it is particularly important for this population to experience high task-involving climates created by coaches and teammates to optimize physical, social, and emotional well-being

Table 6

Strategies for Coaches to Foster a Task-Involving Climate and Minimize an Ego-Involving Climate

Strategy	Explanation
Grow individual coach-athlete relationships	Learn individual personalities and facts about your athletes, including their other interests (e.g., school, work, free time). Quickly check in with each athlete before, during, or after practice and games about their life to create a caring and compassionate culture—important aspects of task-involving climates. Provide each athlete with genuine and caring attention to minimize favoritism and unequal recognition.
Promote growth mindset (Dweck, 2016)	Frame challenges and failure as learning opportunities. Emphasize that success is cultivated through unwavering effort, while reminding players that everyone can improve. When athletes fail, help them understand what went wrong, how to correct the mistake, and encourage them to try again. This creates a safe space for mistakes and enables resilience.
Praise effort	Individually compliment athletes (like on the sideline after a play) who showcase determination by making eye contact and specifically explaining how they showed effort (e.g., "Great job running for the ball that was passed out of bounds", "Way to dive hard on defense"). This exemplifies prioritizing progress and effort—task-involving behaviors— and minimizes unequal skill recognition—ego-involving behaviors.
Eliminate negative wording	Tell athletes what to do, instead of what not to do (e.g., "Put your weight on your toes" versus "Don't put weight on your heels"; "Try again" versus "Don't give up"). Positively explain to athletes how to be successful, and help athletes catch their instances of negative wording. On my teams, we work to eliminate phrases like, "My bad" or "I'm sorry I messed up" and instead incorporate phrases like, "I got it next time" or "Let me try it again". This creates a task-involving climate by encouraging forward-focused learning and effort.
Define each athlete's role	As early as possible, meet individually with each athlete to discuss your vision for their role on the team. Clearly explain their contribution to the team's culture and success, regardless of their physical abilities or playing time. Be open-minded and invite your athletes to participate in the conversation. Ask about their season goals and their vision for their role. Revisit this conversation multiple times during the season, especially if the athlete's role changes. Identify and praise athletes when they successfully contribute to the team with their role. This open communication helps athletes understand their important and unique contribution and helps combat ego-involving components like unequal recognition and intra-team rivalry and competition.
Prioritize self-referencing	Refrain from comparing an athlete's performance (physical or mental) to other players; instead, compare to their past performances through objective statistics, such as showing skill performance changes between games or anecdotal examples ("I saw you hustling faster to shag today"). Ask your players to explain how they improved or why they were successful ("Why did your serve go to your intended target?") to encourage them to utilize self-referencing. After practice, ask players to share what they learned or improved with you or a teammate. This promotes learning and improvement (task-involving) over normative comparison (ego-involving).

Utilize positive reinforcement	Reward behavior you want to see (e.g., effort, mastery, improvement) through simple verbal ("Way to follow through on that swing") or non-verbal (smiling, clapping, nodding) communication, or rewards such as choosing a drill or playing music in practice. Find an effective, appropriate, and contingent reinforcer for each athlete and combine it with a specific explanation of the desirable behavior they exhibited. Positive reinforcement is most successful when athletes are learning or starting to master new skills and can be used individually or for the team. Prioritize positive reinforcement over punishment for mistakes (like yelling at athletes or enforcing physical conditioning punishments) Reinforcing effort and learning over outcome contributes to a higher task-involving and lower ego-involving motivational climate.
Offer autonomy opportunities	Allow athletes to participate in their own experience through opportunities for autonomy. This can be accomplished through small situations (e.g., allowing athletes to choose what practice shirts or jerseys to wear or their warm-up music) or larger means (e.g., allowing athletes to design their practice or warm-up routine). Whenever possible, involve athletes in team decisions, like voting for team captains or setting team expectations. Coaches can provide 2-3 choices for athletes instead of asking players to come up with ideas. When all athletes are equally involved in team decisions, cooperation is increased, which is an important task-involving climate trait.
Be patient	Athletes develop at different rates. Give them time to master new skills and improve established skills. If an athlete is not learning, try new coaching tactics or explain the skill differently. Some athletes learn visually and may need the skill modeled. Other athletes understand verbal explanations. Some react to subjective observations (e.g., "It seems like most of their attacks are from the middle. Let's move our block."), while others prefer objective facts ("75% of their points are coming from our missed serves."). Try out several strategies to understand how athletes learn best and give them multiple opportunities to demonstrate growth. Provide contingent feedback but allow athletes time to implement the instruction. This patient coaching mindset creates a safe and supportive space for athletes to fail, learn, and grow, and removes pressure for perfect performances or punishment for mistakes.
Highlight fun	Adolescents often participate in sport because they enjoy it. Prioritize creating an enjoyable atmosphere over winning. This does not mean eliminating competition; instead, promote learning, cooperation, and life skill development alongside competitive outcomes. Celebrate small improvements and successes, employ a positive mindset, and show gratitude for your athletes.
Stay Calm	Following athlete mistakes, refrain from becoming agitated and yelling at players. Instead, deliver instructional, performance-based feedback. Explain why (or why not) athletes were successful in a calm and steady tone with open, positive body language and give explicit directions on how to improve, while encouraging repeated effort. This minimizes the ego-involving component of punishment for mistakes by focusing on future oriented direction and encouragement.

Table 7

Strategies for Coaches to Foster a Teammate Task-Involving Climate and Minimize an Ego-Involving Climate

Strategy	Explanation
Randomize grouping	Line players up alphabetically by name, numerically by number, or other creative ways and randomly pair athletes for tasks or drills. Coaches can allow players to pick partners (providing autonomy), but encourage them to pair with new teammates. If traveling, randomize roommates or bus buddies. This encourages relationships with all teammates and increases feelings of relatedness, promoting a task-involving climate, while decreasing intra-team conflict by creating intrateam relationships, minimizing an ego-involving climate.
Increase cooperative opportunities	Utilize activities that demand cooperation to accomplish a team goal, instead of individual goals (e.g., achieving 50 team serves instead of 10 individual serves). Ask position players to be a second set of eyes for their partner: when one outside is on the bench, she could watch the opponent's defense and tell the outside on the court what to hit. This creates opportunities to interdependently accomplish a team goal, while allowing individual players to stay involved, increasing cooperation. When athletes help teammates reach success, intra-team competition (a component of a ego-involving climate) is stifled as all athletes need to encourage each other to play their best and accomplish a goal together.
Emphasize gratitude	Show appreciation for players who committed their time and energy to the team. Start practice by saying, "Thank you for coming to practice on time" or end practice with, "Thank you for working hard today". Encourage teammates to share gratitude for teammates—"I appreciated that Taylor encouraged me when I was frustrated". This is a form of positive reinforcement and can help increase feelings of acceptance and appreciation, leading to increased relatedness support, and decreased intra-team conflict by creating positive intra-team relationships and minimizing criticism and critique.
Highlight teammate recognition	Conclude practice with teammate "shout-out"s, where players identify how a teammate improved. Randomly partner teammates and ask them share with each other or ask players to share with the group ("Lauren worked really hard on her serve today, and she was could consistently serve over the net by the end of practice"). Coaches should structure these accolades to focus on effort and learning. Make sure every player is positively recognized by a teammate. This strategy reinforces improvement, effort, and relatedness support—components of a peer task-involving climate, and minimizes complaints and criticism—components of a ego-involving climate.
Promote servant leadership	Encourage athletes to put teammates' needs ahead of their own. Captains and informal leaders should focus on the growth of their teammates through collaboration and communication. During cooperative opportunities, ensure every player has a chance to share their perspective, and encourage leaders to consider the group when making decisions. For example, if asked to establish team goals, encourage captains to facilitate a team conversation and collaborate. When athletes help build up others, intra-team competition and conflict decrease. When athletes feel their opinions are respected, valued, and accepted, relatedness support will increase, resulting in a higher task-involving and lower ego-involving climate.

Study Limitations and Future Research Directions

I note several limitations and directions for future research. First, all constructs were measured through self-report, which may not fully capture player experiences. Players may have been hesitant to share negative perceptions of their experiences with coaches and teammates. Second, the study utilized a cross-sectional design, so results indicate associations and not causal effects. Third, the number of players who volunteered for the survey from each team ranged from 1 to 11 participants. Thus, it is unknown whether those who dissented felt differently about their team climates and environment. Finally, only female athletes ages 14-18 years old were surveyed; male athletes or younger athletes may perceive climates and cohesion differently than this study's population.

There are several avenues for future research examining coach and peer motivational climates and cohesion. First, developmental differences exist between adolescent male and female athletes (Horn, 2004). Adolescent girls often report lower self-esteem compared to adolescent boys, particularly with early maturing females. It would be interesting to replicate this study with adolescent male athletes. Second, as motivational climates may change as a result of seasonal performance, it would be beneficial to use a longitudinal design to identify how pre-season perceptions of climate and cohesion compare to end-of-season perceptions. This would necessitate intact teams from previous seasons. Third, it would be beneficial to examine team factors as correlates of team cohesion, such as coach gender, team goal-setting, and team win/loss record (Carron, 1982; Senécal, Loughead, & Bloom, 2008; Stevens & Bloom, 2003). One study

found female athletes across a variety of sports perceived that female head coaches created higher task-involving climates compared to male coaches (Vazou, 2010). Stevens and Bloom (2003) and Senécal et al. (2008) identified team goal-setting as an important factor in developing and maintaining task and social cohesion, so goal setting could be examined alongside motivational climate to understand variations in cohesion. Additionally, cohesion has been moderately-to-strongly associated with team performance (e.g., Carron et al., 2002; Evans & Dion, 2012), so it would be beneficial to understand how the relationship between climate and cohesion associates with team win/loss records during and at the conclusion of a season.

Conclusion

This study extended past research by concurrently examining coach and teammate motivational climates in relation to team task unity and social connection with adolescent female athletes, guided by multiple social-cognitive theories. Results highlighted the important role that coaches and teammates exert through behaviors that value and reinforce aspects of the team environment. When athletes feel their coaches and teammates prioritize skill mastery and effort rather than winning and normative comparison, athletes report better intra-team relationships and ability to work towards a common goal. Results bridge a gap in current literature by showing that coaches and teammates play an equally important role in shaping the motivational climate contributing to athletes' feelings of unity. Thus, it is imperative that coaches and players work together to create a "united front" in providing a positive and formative

psychosocial experience for adolescent female athletes through utilizing strategies aimed at fostering mastery motivational climates.

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Appendix A

University of Minnesota Institutional Review Board Approval

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Human Research Protection Program
Office of the Vice President for Research

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APPROVAL OF NEW STUDY

November 27, 2017

Maureen Weiss

612-625-4155
mrweiss@umn.edu

Dear Maureen Weiss:

On 11/27/2017, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Experiences in Team Sports
Investigator:	Maureen Weiss
IRB ID:	STUDY00001731
Sponsored Funding:	None
Grant ID/Con Number:	None
Internal UMN Funding:	None
Fund Management Outside University:	None
IND, IDE, or HDE:	None
Documents Reviewed with this Submission:	• Recruitment_Hailee Moehnke, Category: Recruitment Materials; • Participant Consent Form, Category: Consent Form; • Evaluation survey_YSEQ_Hailee Moehnke, Category: Other; • Evaluation survey_PAS_Hailee Moehnke, Category: Other; • Parent Information Sheet_Hailee Moehnke, Category: Consent Form; • Evaluation survey_SPP_Hailee Moehnke, Category: Other; • Hailee Moehnke_IRB Protocol, Category: IRB Protocol; • Evaluation survey_MCSYS_Hailee Moehnke,

Appendix B

Club Director Letter

Dear Club Director,

My name is Hailee Moehnke, and I am a graduate student in the School of Kinesiology at the University of Minnesota studying with Dr. Maureen Weiss as my advisor. I am writing to seek your cooperation for having your volleyball players participate in my thesis study. As a former volleyball player and current volleyball coach, I am interested in female adolescent players' experiences in team sports. To understand this topic, I would like to administer a survey asking players about their experiences playing a team sport like volleyball.

I am requesting that members of your 15s-18s volleyball teams complete a survey before or after a practice in March or April, whichever is more convenient for you and your club. I am aware of the many time demands of players and coaches during the club season, so I want to assure you that the time participating in this study is minimal. The survey will require no more than thirty minutes to complete. Participants will not need to write their names on the survey, so their identity and that of their club is anonymous.

Your participation in this thesis project is sincerely appreciated. The information gathered through this study will help to further understand athlete experiences in team sports. If you are interested in participating, please respond by email and I will follow up with you within the next week to answer any questions and discuss logistics. Please feel free to contact myself, or my advisor, with any questions.

Thank you for your consideration, and I look forward to hearing from you.

Best,

Hailee Moehnke
Graduate Student, Kinesiology
(832) 492-4675
moehn009@umn.edu

Dr. Maureen Weiss
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(612) 625-4155
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Appendix C

Parents' Informational Form

Parents' Informational Form

University of Minnesota Project Title: Experiences in Team Sport

Your daughter is invited to be in a research study about her experiences in a team sport. Your child was selected because she is between the ages of 15-18, and participates on a team at a Junior Olympic club program, which entails the groups of interest in this study. We ask that you read this form and ask any questions you may have.

Background Information:

The purpose of this study is to understand youths' thoughts and feelings about involvement in a team sport.

Procedures:

During an allocated time during before or after a practice session, your child will respond to a survey about her experiences participating in a team sport. Your child will spend about 30 minutes completing the survey.

Risks and Benefits of Being in the Study:

There are no direct risks to your child for completing the questions. There may be a minor risk of discomfort caused by sharing personal thoughts and experiences about participating in a team sport. There are no direct benefits to your child for participating in this study.

Compensation: Your child will receive no compensation for participating in the study.

Confidentiality:

The information that your child gives in the study will be handled confidentially. Your child's name will not be requested on the survey to protect their identity. The child assent form will remain separate from your child's survey. Your child's name will not be used in any report.

Voluntary Nature of the Study:

Your child's participation in this study is completely voluntary. Your decision whether or not to participate will not affect your or your child's current or future relations with the University of Minnesota. If you decide to allow your child to participate, they are free to not answer any question or withdraw at any time without any penalty.

Right to withdraw from the study:

Your child may stop answering questions at any time. There is no penalty for doing so. Your child will be told to give their blank survey to Hailee who will dispose of it

immediately. You may also withdraw your permission at any time by contacting Dr. Maureen Weiss (contact information below).

How to withdraw from the study:

If your child wants to discontinue completing the survey, she should stop writing and sit quietly until the remainder of players have finished. You may withdraw your permission at any time by contacting Hailee Moehnke or Dr. Maureen Weiss. There is no penalty for withdrawing from the study.

Contacts and Questions:

The primary researcher conducting this study is Hailee Moehnke. You may ask any questions you have now. If you have questions later, you are encouraged to contact Hailee Moehnke, or her advisor, Dr. Weiss:

Hailee Moehnke

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Appendix D

Data Collection Script

- Hi, my name is Hailee, and I'm from the University of Minnesota. I study the benefits of sports and physical activities for teenagers.

- Thank you for helping us out today by completing a survey. We're going to take about 25 minutes to answer some questions about your volleyball experiences.

- A survey is about giving your opinions. It is not a test because there are no right and wrong answers. We are interested in your thoughts and feelings only. Because girls are so different from one another, we expect to get a wide range of answers. So please be honest with your responses. Your survey responses will be confidential.

- Before we start, I would like to kindly ask you to silence your cell phones and put them in your backpacks for the duration of this session. Because of the confidential nature of the survey, it is important to sit quietly and stay off your phones until everyone is done, even if you finish before everyone else. Thank you for helping me with this request.

- Okay, let's go ahead and get started. First, I am going to pass out a form for you to give permission to take the survey. Please space yourselves out so you have room to answer the survey.

~~~~Hand out assent forms and pencils~~~~~

- Please look at the assent form. This page is about giving your permission to do the survey. There are **3 key points**: (1) the purpose is to understand your experiences on your volleyball team, (b) the survey will take between 20 and 30 minutes, and (c) your responses will remain confidential, meaning that only I and my faculty advisor will see your answers. Please feel free to read through this assent form. When you're ready, if you want to continue to do the survey, **print your first and last name**; sign your name, and write today's date (March 8).

~~~~Collect assent forms~~~~

- Now we'll go ahead and pass out the surveys. Please don't open the survey yet. Hold on until everyone has a survey and I can give instructions when everyone is ready. Okay, please open your survey to page 2. Remember we are interested in your thoughts and feelings about your volleyball experiences. The instructions say, "Following the prompt "On this team" read each statement and then circle the number that best represents how much you agree with how it has felt to play on this team throughout this season. For items that mention the coach, respond for your head coach only." Please read and respond to each item by circling a number corresponding to responses that range from strongly disagree to strongly agree. If you have a question at any time, raise your hand and one of us will come around to help you.

~~~~ As you see most of them get toward the last couple of questions on page 1 say, "When you're done completing page 1, go on to the next page and read the instructions before completing the items." ~~~~~

- **If you have a question at any time**, just **raise your hand** and one of us will come around to help you. You can continue with the entire survey on your own.
~~~~

During Survey Prompts

- [Players should go ahead to the next section after reading, “Please continue with the survey on the next page.” **As you see them near the end of one page or turn the page, remind them that they should read the instructions for each section**, “When you get to a new section in the survey, be sure to read the instructions carefully first and then respond to the items.”]

- When players finish their survey and raise their hand as the end of the survey asks them to do, ask whether they went back and checked that they responded to each and every question.

- When collecting the survey, say, “Thank you so much. I’m just going to quickly check to make sure that you didn’t accidentally miss responding to any items.

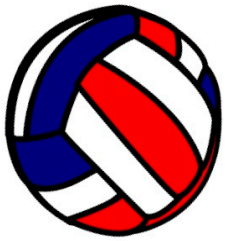
- Thank each player individually when you collect their survey and remind them to sit quietly until everyone else is finished so that others can focus and finish quickly. (if you see them take out a cell phone or anything else for that matter, quietly ask them to put things away).

- At the end thank the players, coaches, club director, and any other staff or individuals that enabled us to conduct this study.

Potential questions:
(1) “What if I agree between neutral and agree (3 and 4)?” (or between any other two numbers)
→ “Go ahead and pick one or the other—the response that is closest to how you think.”

Appendix E

Experiences in Team Sports Survey



Experiences in Team Sports
2018

In My Gym (part 1)

Following the prompt "On this team…" read each statement and then circle the number that best represents how much you agree with how it has felt to play on this team throughout this season. For items that mention the coach, respond for your head coach only.

On this team…	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
the coach wants us to try new skills.	1	2	3	4	5
the coach gets mad when a player makes a mistake.	1	2	3	4	5
the coach gives most of his or her attention to the stars.	1	2	3	4	5
each player contributes in some important way.	1	2	3	4	5
the coach believes that all of us are crucial to the success of the team.	1	2	3	4	5
the coach praises players only when they outplay teammates.	1	2	3	4	5
the coach thinks only the starters contribute to the success of the team.	1	2	3	4	5
players feel good when they try their best.	1	2	3	4	5
players are taken out of a game for mistakes.	1	2	3	4	5
players at all skill levels have an important role on the team.	1	2	3	4	5
players help each other learn.	1	2	3	4	5
players are encouraged to outplay other players.	1	2	3	4	5
the coach has his or her own favorites.	1	2	3	4	5
the coach makes sure players improve on skills they're not good at.	1	2	3	4	5
the coach yells at players for messing up.	1	2	3	4	5
players feel successful when they improve.	1	2	3	4	5
only the players with the best "stats" get praise.	1	2	3	4	5
players are punished when they make a mistake.	1	2	3	4	5
each player has an important role.	1	2	3	4	5
trying hard is rewarded.	1	2	3	4	5
the coach encourages players to help each other.	1	2	3	4	5
the coach makes it clear who he or she thinks are the best players.	1	2	3	4	5
players are "psyched" when they do better than their teammates in a game.	1	2	3	4	5
if you want to play in a game you must be one of the best players.	1	2	3	4	5
the coach emphasizes always trying your best.	1	2	3	4	5
only the top players get noticed by the coach.	1	2	3	4	5
players are afraid to make mistakes.	1	2	3	4	5
players are encouraged to work on their weaknesses.	1	2	3	4	5
the coach favors some players more than others.	1	2	3	4	5
the focus is to improve each game/practice.	1	2	3	4	5
the players really "work together" as a team.	1	2	3	4	5
each player feels as if they are an important team member.	1	2	3	4	5
the players help each other to get better and excel.	1	2	3	4	5

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In My Gym (part 2)

Following the prompt "On this team, most athletes …" read each statement and circle the number that best represents how much you agree with how it has felt to play on this team throughout this season.

On this team, most athletes…	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
help each other improve.	1	2	3	4	5	6	7
encourage each other to outplay their teammates.	1	2	3	4	5	6	7
offer to help their teammates develop new skills.	1	2	3	4	5	6	7
care more about the opinion of the most skilled teammates.	1	2	3	4	5	6	7
make their teammates feel valued.	1	2	3	4	5	6	7
work together to improve the skills they don't do well.	1	2	3	4	5	6	7
make negative comments that put their teammates down.	1	2	3	4	5	6	7
try to do better than their teammates.	1	2	3	4	5	6	7
criticize their teammates when they make mistakes.	1	2	3	4	5	6	7
teach their teammates new things.	1	2	3	4	5	6	7
encourage their teammates to try their hardest.	1	2	3	4	5	6	7
look pleased when they do better than their teammates.	1	2	3	4	5	6	7
make their teammates feel accepted.	1	2	3	4	5	6	7
want to be with the most skilled teammates.	1	2	3	4	5	6	7
praise their teammates who try hard.	1	2	3	4	5	6	7
complain when the team doesn't win.	1	2	3	4	5	6	7
are pleased when their teammates try hard.	1	2	3	4	5	6	7
care about everyone's opinion.	1	2	3	4	5	6	7
set an example on giving forth maximum effort.	1	2	3	4	5	6	7
laugh at their teammates when they make mistakes.	1	2	3	4	5	6	7
encourage teammates to keep trying after they make a mistake.	1	2	3	4	5	6	7

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In My Gym (part 3)

The following statements convey potential experiences on your team. Please circle a number from 1-9 to show how much you agree with each statement.

	Strongly Disagree				Neutral				Strongly Agree
We all share the same commitment to team goals.	1	2	3	4	5	6	7	8	9
I invite my teammates to do things with me.	1	2	3	4	5	6	7	8	9
As a team, we are all on the same page.	1	2	3	4	5	6	7	8	9
Some of my best friends are on this team.	1	2	3	4	5	6	7	8	9
I like the way we work together as a team.	1	2	3	4	5	6	7	8	9
I do not get along with members of my team.	1	2	3	4	5	6	7	8	9
We hang out with one another whenever possible.	1	2	3	4	5	6	7	8	9
As a team, we are united.	1	2	3	4	5	6	7	8	9
I contact my teammates often (phone, text messages, internet).	1	2	3	4	5	6	7	8	9
This team gives me enough opportunities to improve my performance.	1	2	3	4	5	6	7	8	9
I spend time with my teammates.	1	2	3	4	5	6	7	8	9
Our team does not work well together.	1	2	3	4	5	6	7	8	9
I am going to keep in contact with my teammates after the season ends.	1	2	3	4	5	6	7	8	9
I am happy with my team's level of desire to win.	1	2	3	4	5	6	7	8	9
We stick together outside of practice.	1	2	3	4	5	6	7	8	9
My approach to playing is the same way as my teammates.	1	2	3	4	5	6	7	8	9
We contact each other often (phone, text messages, internet).	1	2	3	4	5	6	7	8	9
We like the way we work together as a team.	1	2	3	4	5	6	7	8	9

How old are you? _____

When is your birthday (month/day/year)? _____

What is your grade in school? _____ What team do you play for? _____

How many years have you been playing competitive volleyball (on organized teams)? _____

How many years have you been playing for this head coach (on organized teams)? _____

Is your head coach: Male Female

How do you describe yourself? (circle all that apply)

White African-American Asian

Hispanic/Latino Native American Other: _____

PLEASE GO BACK AND CHECK THAT YOU ANSWERED EVERY QUESTION.

THANK YOU! RAISE YOUR HAND AND WE WILL COLLECT YOUR SURVEY.